

A NOTE ON THE EMBRYOLOGY OF  
THE GROUND NUT (*ARACHIS HYPOGAEA* L.)

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(*With two text-figures*).

*Arachis hypogaea* is a crop plant of great economic importance. In India, it is cultivated extensively in Bombay, Madras and the Central Provinces. In Bengal, Mysore and in other parts of India attempts are now being made to grow ground-nut on an extensive scale. The plant is grown as a *rabi* crop.

The literature on the embryology of Leguminosae is extensive. It has recently been reviewed by Schnarf (9), Roy (6) and others. Excepting a few cases which, however, require reinvestigation, the development of the female gametophyte in the family was found to be of the normal type. Guignard (1), Souèges (11), Samal (8) and others have studied the development of the embryo. Considerable variation has been noted in the development of the pro-embryo and the suspensor.

Reed (4) appears to be the only investigator who has worked on the embryology of *Arachis hypogaea*. He has only described the fully developed gametophyte and certain stages in the development of the embryo in connection with his studies on the anatomy, ecology and embryology of the plant.

The material used in this investigation was obtained from plants grown in the University College experimental ground and was studied according to the customary methods.

As is characteristic of the family Leguminosae, the monocarpellary ovary bears the ovules on the ventral suture. Generally the ovules are two in number, but sometimes three or only one have been noted. The ovule initials are at first noted as small papillate processes on the placenta. Due to more active cell division on one side of the ovule they gradually curve and take up an anatropous position. At this time the outer wall of the ovule generally comes in contact with the wall of the ovary, but the curvature of the ovule does not appear to be due to the contact with the ovarian wall as has been suggested by Reeves (5) working on *Medicago*. Both the ovules curve in the same direction and the curvature is always towards the stylar end of the ovary. It is interesting to note in this connection that Reeves (5) working on *Alfalfa* found the curvature of the ovule towards the base of the ovary. In *Albizia Lebbeck* and *Phaseolus vulgaris*, Maheshwari (2) and Weinstein (12) found the ovules curving towards the stylar end of the ovary.

The origin of the integuments becomes apparent along with the curvature of the ovule. Both the integuments arise from the outer layer of cells of the ovule and in the early stages of their development are composed of two layers of cells. The inner integument is first noted, but very soon the outer integument makes its appearance. At the time of differentiation of the integuments the megaspore mother cell is generally in the early stages of heterotypic prophase. The growth of the outer integument is more rapid than the inner and by the time the megaspore mother cell is in synopsis, the outer integument reaches the same level as the inner. From this stage onwards, the growth of the outer integument is more rapid on the side of the ovule opposite to that of the placenta, and as a result it very soon completely encases the ovule. Both the integuments take part in the formation of the micropyle, at which region they are comparatively thick.

A single archesporial cell usually differentiates in the third layer of the nucellus and directly functions as the megaspore mother cell. The origin of the archesporial cell or cells, in the third layer of the nucellus appears to be a common feature in the Papilionate and has been noted previously by